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expected from its electrolytic dissociating power.

#### MEASUREMENT OF THE INTENSITY OF SOUND.

INSTRUMENTS for the measurement of sound intensities were described before Section B at Boston by Professor A. G. Webster and by Dr. J. O. Reed. In Professor Webster's instrument the amplitude of vibration of a thin glass diaphragm is measured by the interferometer, the fringes being photographed on a moving plate. In Dr. Reed's instrument the amplitude of vibration of a diaphragm is observed by means of a micrometer microscope focussed upon the tip of a stylus attached to the diaphragm.

Professor Webster outlined a method for calculating the absolute intensity of the sound (amplitude of the periodic force acting upon the diaphragm) from the observed amplitude of vibration. In this outline Professor Webster made use of the equation of motion of a system with one degree of freedom, namely,

$$\frac{d^2x}{dt^2} + \beta \frac{dx}{dt} + ax = Ae^{pt}.$$

Now, this equation is, in fact, applicable to any system vibrating in a given simple mode (*i. e.*, when the period of each particle of the system is the same and its amplitude a one valued function of its position) but it is impossible to determine the coefficient  $a$  by static measurements of any kind. The effect of the air which vibrates with the diaphragm can, however, be taken into account so that the coefficient  $a$  may be approximately determined, by using as a resonator a long air column. However, the results of some determinations by Professor Webster agree quite well with sound intensities as measured by Rayleigh.

W. S. F.

#### NOTES ON INORGANIC CHEMISTRY.

THE first number of the *Chemical News* in September is known as the 'Students' Number,' and is devoted to a description of the chemical departments of the British universities and colleges. It is noticeable at once that the facilities for chemical study in Great Britain are very far behind those of Germany, and I think we may fairly say below those of America. Probably a dozen or even more institutions could be found in this country where greater advantages are offered than anywhere in England. Three colleges only have more than one professor in the chemical department, *viz.*: Victoria University, Yorkshire College, Leeds, with a professor in the dyeing department, and a professor in the leather industries department, in addition to the professor of chemistry; Owens College, Victoria University, Manchester, with a professor of chemistry and a professor of organic chemistry; Glasgow and West of Scotland Technical College, with a professor of chemistry and a professor of technical chemistry. The Royal College of Science and Royal School of Mines has, in addition to a professor of chemistry, an assistant professor, and King's College has a professor of metallurgy. In the number of teaching force also the British colleges would seem to be deficient. The average number of instructors, including all assistants and demonstrators, in the twenty-nine colleges mentioned is less than four, and this average is strongly brought up by Owens College and Yorkshire College, each of which has a corps of ten instructors, and the University College, Liverpool, with seven. The two former would appear to be the only colleges of Great Britain with adequately equipped chemical departments; Oxford and Cambridge hardly seem to be in the race.

THE same number of the *Chemical News* contains, as its single item of current news,

the statement that the War Office authorities have decided to do away with part of the scientific training at the Royal Military College at Woolwich, by closing the chemical laboratory—a curious step backwards for modern times.

IN investigating pitchblende to find why the activity of the Becquerel rays is not proportionate to the amount of uranium present, a rule holding in general for compounds of uranium, M. P. Curie and Mme. S. Curie have isolated a new substance which appears to be a new metal. It is, according to the *Comptes Rendus*, thrown down with the bismuth sulfid and partly separated by heating in vacuum to 700° C., the sublimate obtained having 400 times the activity of uranium. The spectrum, however, emits no characteristic lines. The name of *polonium* is suggested for the new substance, from the country where the pitchblende was found. J. L. H.

#### ZOOLOGICAL NOTES.

IN a recently issued excerpt from the Bulletin of the U. S. Fish Commission, Dr. Hugh M. Smith treats of the Florida Commercial Sponges, briefly describing the species taken and discussing the causes of their decrease and the possible remedies for it. The causes of decrease are the usual ones, the taking of small sponges and excessive fishing; the proposed remedies are the enforcement of the laws against taking small sponges and the prohibition of sponging on certain grounds for definite periods. From the very rapid rate of growth assigned to the most valuable species, the sheepswool sponge; it is evident that the restocking of the depleted sponge beds would be a very simple matter if the above remedial measures could be enforced. Dr. Smith tells us that experiments seem to show that the sheepswool may, under favorable conditions, attain a weight of one tenth of a pound in six months and reach

a commercial size in a year. He considers that sponge culture promises well for Florida waters, where, for some reason, growth is more rapid than in the Mediterranean. On the other hand, the introduction of Mediterranean sponges is regarded as problematical, and it is a question if the introduced sponges would retain their superiority under the changed environment. The paper is illustrated by numerous half-tone plates of commercial sponges.

F. A. L.

#### CURRENT NOTES ON ANTHROPOLOGY.

##### THE ZOQUE LANGUAGE.

AN important contribution to American linguistics is the 22d volume of the 'Bibliothèque Linguistique Américaine' (Paris, Maisonneuve), which has just appeared. It is entitled 'Langue Zoque et Langue Mixe,' and is edited by M. Raoul de la Grasserie (1898, pp. 384). Most of it is occupied with the Zoque, of which a grammatical outline is given and a vocabulary of nearly 7,000 words from the MS. of Father Luis Gonzales (1672). This is further compared with the modern Zoque as spoken at present in Chiapas.

The Mixe is represented by the Grammar of Father Quintana (1730), a short vocabulary and some texts.

The work closes with a comparison of the Zoque and Mixe, showing them rather closely related members of the same stock, though with notable differences in words and in morphology, especially that the Mixe prefixes the pronoun in the conjugation, while the Zoque suffixes it.

M. de la Grasserie has edited these materials with great care, and the volume is a valuable addition to linguistic literature.

##### THE ANTHROPOLOGY OF BRUNSWICK.

ON the occasion of the meeting this year of the German Anthropological Society at Brunswick, a little volume has been issued